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Depression in Primary Care: Comorbid Disorders and Related Problems

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Identifying and treating depression has been a major focus in primary care over the last decade. Unfortunately, treatments have not been as successful as originally hoped. The current study investigated factors that may contribute to poor outcomes in a sample of VA primary care patients. Results indicate that 15.5% of the patients in this investigation had significant symptoms of depression. The vast majority (89.6%) of these patients also had significant symptoms of at least one additional comorbid psychiatric condition. Furthermore, an association between depression and unhealthy behaviors (smoking, not exercising) was demonstrated. Finally, sexual dysfunction and chronic pain were more frequently observed in individuals with depressive symptoms. These findings illustrate that depression is only one of many problems for most primary care patients identified with depression. A multidisciplinary team in primary care is recommended to provide a coordinated approach to the treatment of depression and its associated problems.

KEY WORDS: depression; primary care; comorbidity; lifestyle.

INTRODUCTION

Historically psychology and medicine have based their disciplines on the Cartesian view that mind and body are separate entities and should be assessed, diagnosed, and treated as such. In recent years, as systems of health care delivery have moved to a primary care model, physicians have focused more attention on the psychosocial and lifestyle issues of their patients and an integrative approach to patient care has been emphasized. Following this shift in focus, the detection and treatment of depression in primary care garnered much attention. An emphasis on routine screening for this disorder in primary care settings yielded studies indicating rates of depression ranging from 5 to 40% (Barrett, Barrett, Oxman, & Gerber, 1988; Beck, Steer, Ball, Ciervo, & Kabat, 1997; Coyne, Fechner-Bates, & Schwenk, 1994; Sears, Danda, & Evans, 1999). It is now widely recognized that depression is one of the most common conditions seen in primary care clinics (Katon & Schulberg, 1992).

In 1993, systematic screening for depression in primary care was recommended by the U.S. Public Health Service Agency for Health Care Policy and Research (Depression Guidelines Panel, 1993) to address the high prevalence of depression. This generated great enthusiasm for the vision that (1) depression could be easily identified by screening all primary care patients and (2) it could be treated with antidepressant medications prescribed by primary care providers (Munoz, Hollon, McGrath, Rehm, & VandenBos, 1994). However, over the last decade it has become clear that this was an overly simplistic approach (Coyne, Thompson, Klinkman, & Nease, 2002). Although several good screening tools were developed to efficiently identify depressed individuals in

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primary care clinics (Beck et al., 1997; Spitzer et al., 1994), effectively treating this disorder in the clinics has been more problematic (Coyne, Klinkman, Gallo, & Schwenk, 1997; Coyne, Thompson, Palmer, Kagee, & Maunsell, 2000).

Antidepressant medication was considered the frontline treatment to address depression in primary care (Munoz et al., 1994), but studies have shown that this approach has largely failed for a variety of reasons (Coyne et al., 2000, 2002; Gilbody, House, & Sheldon, 2001). One important reason for this failure is that antidepressant medication alone does not address comorbid health and mental health conditions or unhealthy lifestyle factors that may be contributing to or maintaining the depression.

Research is accumulating showing that depression in primary care patients is frequently accompanied by other psychiatric disorders and is often complex (Wittchen, Lieb, Wunderlich, & Schuster, 1999). In the general population, people with major depressive disorder often have an anxiety disorder (such as panic, generalized anxiety, social phobia, or post traumatic stress disorder [PTSD]) as well (Brown, Campbell, Lehman, Grishman, & Mancill, 2001; Kessler et al., 1996). The presence of comorbid anxiety and depression is associated with greater chronicity and severity of psychopathology, poorer treatment outcome and higher relapse, higher suicide potential and lower overall psychosocial functioning (Brown et al., 2001).

Unhealthy behaviors are intricately interwoven with depression in that they affect one another in a number of ways. For example, smoking and depression have been shown to interact in a complex manner in the general population. Smokers are more likely to be depressed or have a history of depression than nonsmokers (Glassman, 1993). Depression is associated with increased rates of nicotine use (Allgower, Wardle, & Steptoe, 2001; Brown, Madden, Palenchar, & Cooper-Patrick, 2000). In addition, quitting smoking increases the risk for relapse of depression (Glassman, Covey, Stetner, & Rivelli, 2001).

Excessive alcohol consumption also is more common in the general population among those who are depressed (Kessler et al., 1997). Among individuals seeking treatment for alcohol problems, depression is associated with poorer treatment outcome and periods of depression have been associated with relapse (Greenfield et al., 1998; Hodgkins, el-Guebaly, Armstrong, & Dufour, 1999). Furthermore, recent interventions for alcohol problems that have directly addressed depressive symptomatology have been shown to be effective (Brown & Ramsey, 2000.)

In addition to the addictive behaviors described above, depression has been associated with other unhealthy behaviors as well, including lack of physical activity, poor eating habits, irregular sleep hours, not using a seat belt, and not using sunscreen (Allgower et al., 2001). Furthermore, depression is commonly associated with chronic pain (Brown, 1990; Magni, Moreschi, Rigatti-Luchini, & Merskey, 1994) and sexual dysfunction (Kennedy, Dickens, Eisfeld, & Bagby, 1999; Pesce, Seidman, & Roose, 2002; Seidman, 2002), two conditions that are frequently encountered in primary care. Thus, the relationships among depression, health behaviors, and health status in the general population are complex and multidirectional.

To provide high quality treatment in primary care for individuals with depression, it is important to recognize and understand the other mental health, lifestyle factors, and related physical health factors that both impact and are impacted by depression. The current study goes beyond what previous studies have done in that it examines a number of these factors simultaneously in a primary care population and can address whether the extensive comorbidity, so often ascribed to psychiatric populations, is also prevalent in a more general population. The aims of this investigation are (1) to examine the psychiatric comorbidities accompanying depression in a primary care population of older adults; (2) to document the association between depression and indicators of important health habits (smoking, exercise, and diet); and (3) to report rates of sexual dysfunction and chronic pain for those who are depressed and those who are not. These findings will increase our understanding of the range of issues that should be addressed among individuals identified with depression in primary care, and will have implications for developing effective interventions that take into account the other important variables that interact with or perpetuate depression.

METHOD

Participants

Participants were 313 outpatients from the Primary Care Clinics at the Boston VA Medical Center and Outpatient Clinic. This predominantly male (97.8%) sample had a mean age of 63.6 ($SD = 13.2$, range 28–94). (See Table I for other demographics).

Table I. Participant Demographics

Variable	*N*	Percent (%)	*M*	*SD*	Range
Race	(311)				
White	239	76.8			
Black	65	20.9			
Hispanic	5	1.6			
Asian	2	0.6			
Marital status	(308)				
Married	146	47.4			
Divorced/separated	72	23.4			
Widowed	29	9.4			
Single, never married	61	19.8			
Education (years)	(310)		12.8	2.6	3–23
Less than high school	60	19.3			
High school or equivalent	120	38.7			
Post-high school	130	42.0			
Receiving VA disability	(312)		20.1	30.9	0–100
No	162	51.9			
Yes	150	48.1			

Procedure

Patients with primary care appointments between June 1998 and October 1998 were recruited either by phone contact or in-person on the day of their appointment and asked to participate in this study. Recruitment initially involved obtaining lists of patients with primary care appointments for the upcoming month and calling each patient on the list to set up an appointment to complete the questionnaire battery on the same day as the primary care appointment. Despite this time-intensive effort, recruitment proceeded very slowly: only 18.2% (156/857) were successfully reached and completed the instruments. Many patients were unreachable by phone, or there were last minute primary care scheduling changes and cancellations that made them unable to participate. Thus, an alternate recruitment strategy was employed. The second method involved randomly approaching patients in the primary care waiting area. The second strategy was much more successful: 76.6% (157/205) of the individuals approached by research staff completed the instruments. A detailed comparison of the two recruitment strategies is available from the authors (Lambert et al., 1999).

After signing the informed consent that was approved by the VA Boston Healthcare System Institutional Review Board, participants were asked to complete a number of self-report instruments described below. Participants took approximately 40 min to complete the entire battery of questionnaires, and were reimbursed $5 for their time.

Measures

Demographics

Demographic information was either taken from the VA computer system (age, marital status, service-connected status) or obtained in-person at the interview (years of education, race).

Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item self-report inventory designed to assess depressed mood and vegetative symptoms. Each item is rated on a 4-point scale ranging from 0 to 3 and a total score is calculated by summing the ratings of the 21 items. The BDI has been in use for more than 35 years and has become one of the most frequently used instruments for detecting depression in normal populations. This measure has shown correlations with clinician ratings of depression from .62 to .75 (Beck, Steer, & Garbing, 1988). According to the BDI manual (Beck & Steer, 1993), scores 19 and greater represent moderate to extremely severe depression. Therefore, for the purposes of the current study, a cutoff of 19 and above was selected as the criterion for clinical depression.

Beck Anxiety Inventory (BAI)

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report questionnaire designed to assess the severity of anxiety symptoms. Each item is rated on a 4-point scale ranging from 0 to 3 and a total score is calculated by summing the ratings of the 21 items. Overall, the BAI is considered useful in discriminating anxious from nonanxious diagnostic groups and is significantly correlated with a number of other accepted measures of self-reported and clinically rated anxiety (Beck & Steer, 1990). According to the BAI manual (Beck & Steer, 1990), scores 19 and higher represent moderate to extremely severe anxiety. Therefore, for the purposes of the current study, a cutoff of 19 and above was selected as the criterion for clinical anxiety.

PTSD Checklist (PCL)

The PTSD checklist (PCL; Weathers, Huska, & Keane, 1991) is a 17-item self-report questionnaire

designed to assess current PTSD symptomatology corresponding to the 17 symptoms of PTSD delineated in Diagnostic and Statistical Manual of Mental Disorders, 4th edition (*DSM-IV*; American Psychiatric Association, 1994). Each item is rated on a 5-point scale ranging from 1 to 5 and a total score is calculated by summing the ratings of the 17 items. This measure has demonstrated good sensitivity (.82) and specificity (.83) in a veteran population (Weathers, Litz, Herman, Huska, & Keane, 1993) and has been shown to be highly correlated (.93) with a structured diagnostic interview for PTSD in a population of motor vehicle and sexual assault victims (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). Weathers et al. (1993) recommend 50 and above as a cutoff score to represent current PTSD in a veteran population.

Alcohol-Related Disorders

Patients were screened for current alcohol problems using the CAGE (Ewing, 1984), a widely used 4-item self-report measure, and two questions (assessing quantity and frequency) from the AUDIT (Babor, de la Fuente, Saunders, & Grant, 1992). Patients who scored 2 or higher on the CAGE and reported drinking at least monthly or more in the past year were categorized as having an alcohol use disorder.

Physical Health and Health Behaviors

Self-reports of health habits and other complaints were assessed with a written questionnaire. Using a yes/no format, current smoking (i.e., "In the past 3 months, have you smoked or used tobacco products?"), regular exercise (i.e., "Do you exercise regularly?"), a recommendation from medical team to diet (i.e., "Has your medical team advised you to change your diet or lose weight?"), and difficulties with sexual functioning (i.e., "Do you have difficulty with your sexual interest or functioning?") were assessed. Chronic pain was assessed using two questions adapted from a commonly used measure of chronic pain, the Medical Outcomes Survey Pain Index (Sherbourne, 1992): Did you experience any bodily pain in the past 4 weeks? During the last 4 weeks, how many days did the pain interfere with the things you usually do? (range 1–28). The determination of chronicity was assessed using the *DSM-IV* (American Psychiatric Association, 1994) definition (e.g. "Has this pain been a problem for six months or longer?")

Table II. Rates of Depression, Anxiety, PTSD and Alcohol Problems

	N	Percent (%)
Depression (BDI ≥ 19)	48/309	15.5
Anxiety (BAI ≥ 19)	72/307	23.5
PTSD (PCL ≥ 50)	36/313	11.5
Alcohol (CAGE ≥ 2 and some current drinking)	59/312	18.9

RESULTS

Rates of Mental Health Problems

On the basis of the cutoffs described above, each patient was categorized as having or not having depression, anxiety, PTSD, and alcohol problems. The number of participants meeting criteria for these disorders is presented in Table II. Overall, 38.0% of the sample (119/306) met criteria for at least one of these mental health problems.

For those participants who screened positive for depression, comorbid psychopathology (anxiety, PTSD, alcohol) was common; 89.6% of those who screened positive for depression also met criteria for at least one additional mental health problem (see Fig. 1). Further, a chi square analysis indicates that other psychopathology (anxiety, PTSD, alcohol problems, or a combination of those) is significantly more likely to be present in those who screened positive for depression compared to individuals who screened negative for depression ($\chi^2(3) = 132.3$, $p < .001$, see Table III).

In terms of demographics, no significant differences were found between those who screened

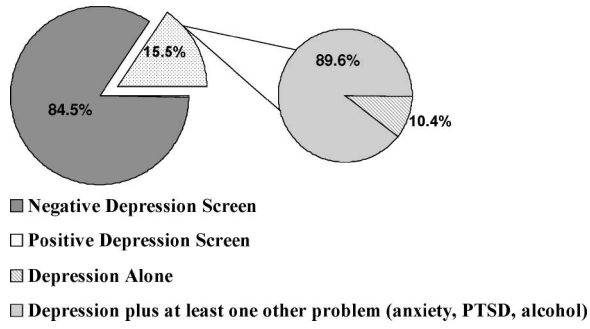

Fig. 1. Percentages of primary care patients with depression and with comorbid psychiatric disorders.

Table III. Depression Status and Other Psychopathology

# of Psychological Problems Other Than Depression	Positive depression screen $N = 48$	Negative depression screen $N = 256$
0	10.4% (5)	73.0%(187)
1	25.0% (12)	22.7% (58)
2	45.8% (22)	3.5% (9)
3	18.8% (9)	0.8% (2)

positive for depression and those who did not on race, marital status, and years of education. However, individuals who screened positive for depression were significantly younger ($M = 58.5$, $SD = 11.6$) than those who did not screen positive for depression ($M = 64.5$, $SD = 13.3$; $t(304) = 2.91$, $p < .01$). In addition, those who screened positive were more likely to have a VA-service-connected disability (64.6%) than those who did not screen positive for depression (45.4%; $\chi^2(1) = 5.98$).

Health and Health Behaviors

In addition to an increased likelihood of comorbid psychopathology, the group of patients who screened positive for depression also reported poorer health behaviors and increased rates of health complaints. As compared to those who screened negative, the patients who screened positive for depression were significantly more likely to smoke, less likely to exercise regularly, and more likely to report sexual dysfunction and chronic pain (see Table IV).

DISCUSSION

The findings from the current study provide additional evidence that depression is common in primary care clinics and that comorbid psychiatric conditions are present in the majority of individuals identified with depression. In addition, these results indicate that there is an association between depression and unhealthy lifestyle habits (smoking and lack of exercise). Furthermore this study found that sexual dysfunction and chronic pain were more frequently observed in individuals with depressive symptoms than those without. Taken together these findings illustrate that depression is only one of a number of problems for the vast majority of primary care patients identified with depression.

Because depression is rarely a problem that occurs in isolation, a more comprehensive and coordinated approach is needed. The findings from this study support the growing body of literature suggesting that a multidisciplinary team can best address depression and co-occuring mental health and lifestyle issues in primary care (e.g. Johnson & Millstein, 2003; Quirk et al., 2000). Such teams have a broad range of treatment options available to address depression and can utilize a multipronged approach to address more than one issue simultaneously to produce better outcomes. For example, an exercise regimen may be recommended for a patient who refuses to take antidepressant medication, as exercise has been shown to substantially elevate mood (Biddle, 1996; Dubbert, 2002; Hansen, Stevens, & Coast, 2001). Further, Brown and Ramsey (2000) illustrated that an intervention that addressed depression as well as alcohol dependence not only improved drinking outcomes but also improved depression, thus reducing the risk for relapse. Similarly, for a patient presenting with chronic pain, it would be important to assess for the presence of depression, given that chronic pain has been shown to predict the onset of depression (Brown, 1990) and depression has been shown to predict pain (Magni et al., 1994). Coordinated treatment addressing more than one problem at a time can reduce the chances that one problem sustains another. Multidisciplinary approaches can optimize treatment and can potentially

Table IV. Depression Status and Health Habit Differences

	Positive Depression Screen % (N)	Negative Depression Screen % (N)	χ^2 (df)	p	Effect size (r)
Lifestyle factors					
Current smoker	46.8% (22/47)	28.4% (74/261)	6.32 (1)	<.05	.14
Exercise regularly	38.3% (18/47)	55.3% (142/257)	4.58 (1)	<.05	.12
Diet	57.4% (27/47)	55.8% (144/258)	0.04 (1)	*ns*	.01
Other complaints					
Sex. dysfunction	66.7% (32/48)	46.3% (118/255)	6.72 (1)	<.01	.15
Chronic pain	76.6% (36/47)	44.7% (114/255)	16.14 (1)	<.001	.23

reduce longer term medical costs associated with unhealthy lifestyle habits.

A notable finding from this study is that 11.5% of these primary care patients endorsed symptoms consistent with a PTSD diagnosis. Few studies have examined the prevalence of PTSD in medical populations and it has recently been labeled a "hidden diagnosis" in primary care (Lecrubier, 2004). The results from the current study are consistent with the finding that 11.8% of patients in a community-based primary care clinic met criteria for full or partial PTSD (Stein, McQuaid, Pedrelli, Lenox, & McCahill, 2000) although these rates are considerably lower than the prevalence of 24.5% found in another VA population (Prins et al., 2003). Utilizing a multidisciplinary team to address behavioral health issues in primary care would provide the advantage of broader service delivery to address other mental health problems, such as PTSD, that may not fit into a narrow definition of depression

Several limitations of this study must be acknowledged. First, this sample from the VA primary care clinic is predominantly male and considerably older than most primary care populations. Additionally, in this sample, participants with depression were found to be younger than those who were not depressed. This unusual finding is likely related to the cohort of Vietnam combat veterans with depression who are younger than most of the other VA patients. For these reasons, this sample cannot be considered representative of primary care populations in general. Second, the measures used to determine psychiatric problems were short self-report scales and not diagnostic measures. Likewise, the measures of lifestyle problems were brief and limited. Future investigations should include more comprehensive assessment of comorbid conditions and lifestyle problems.

These data and the existing literature (e.g. Coyne et al., 2002) suggest that there should be other roads to the treatment of depression than medication alone. Primary care patients with depression may be amenable to inventions such as the promotion of healthy eating and exercise, smoking cessation, and stress management and these interventions are likely to have a positive impact on their depression. Furthermore, addressing these lifestyle issues even in the absence of major depression may prevent the onset of depression and can serve to reduce risk factors for other major medical problems, such as diabetes and heart disease. Psychologists with specializations in behavior change and promotion of adherence can play a key role in working with other healthcare providers to maximize positive outcomes (Johnson and Millstein, 2003). Given that depression in primary care patients is rarely "pure," future studies should examine how multidisciplinary teams can improve outcomes for both depression and general health in primary care clinics.

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